



# ENERGY STAR SHOWCASE: MONTGOMERY COUNTY GOVERNMENT

A CASE STUDY IN PROFITABLE POLLUTION PREVENTION

**C**ASE ..... HUNGERFORD OFFICE BUILDING

**L**OCATION ..... ROCKVILLE, MD

**S**IZE ..... 84,000 SF

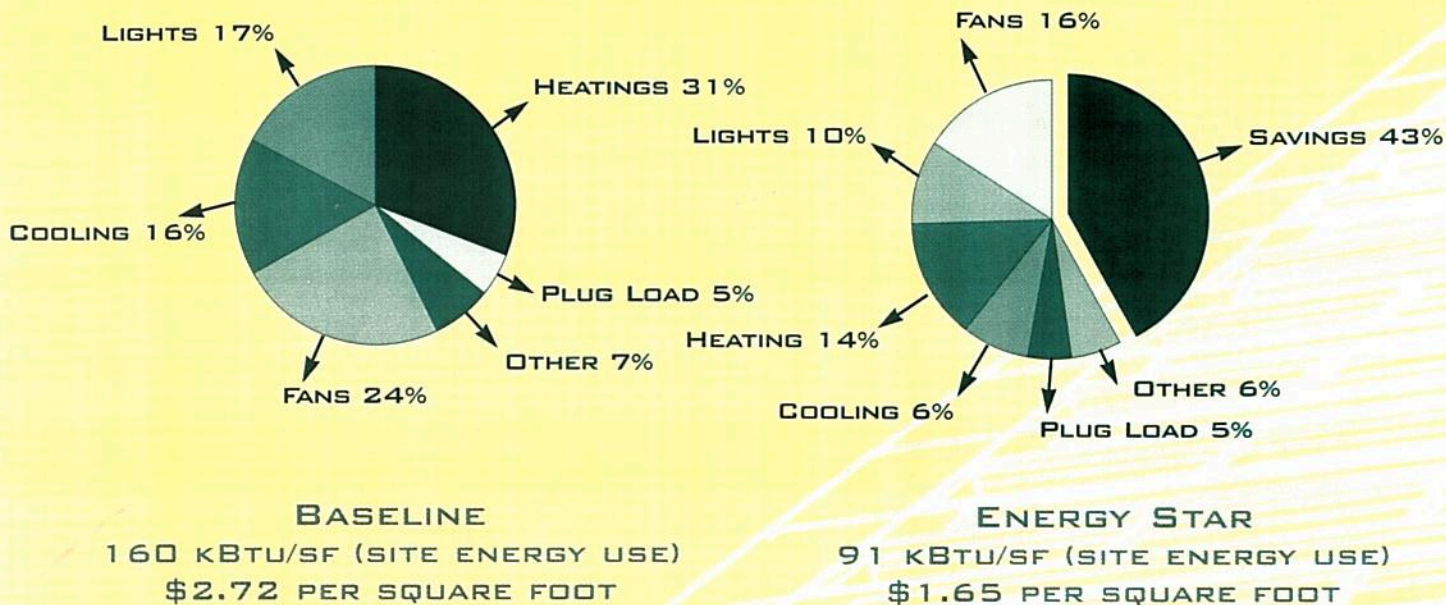
**A**GE ..... MID-1980s

## CHARACTERISTICS

VAV  
ONE AIR HANDLER PER FLOOR  
ELECTRIC REHEAT  
CENTRAL COOLING

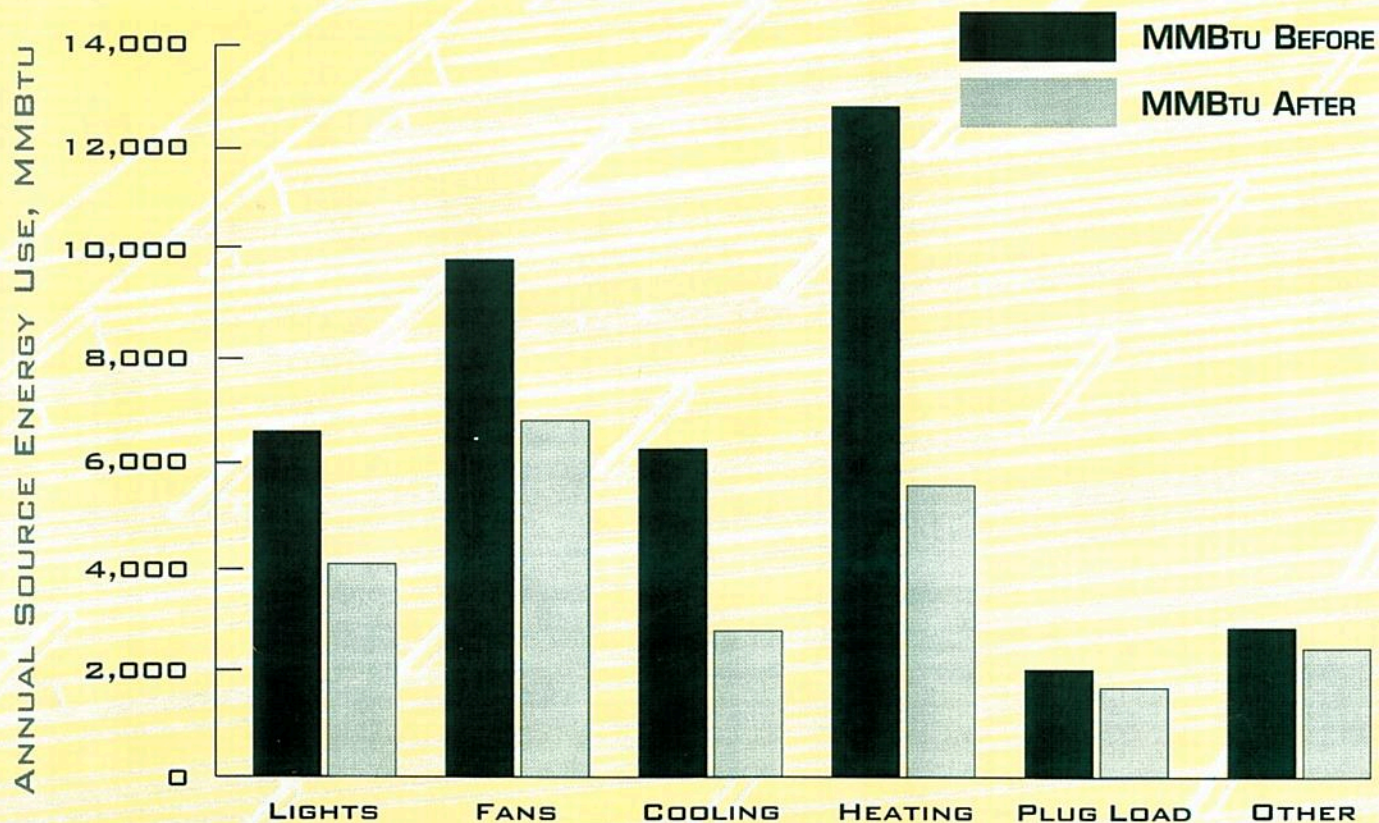


# ENERGY STAR SAVES \$1.07/SF/YR



\*PIE CHARTS ARE BASED ON SOURCE ENERGY USE, ASSUMING 2/3 LOSSES IN ELECTRICITY GENERATION.

## PROFILE OF ENERGY END USES





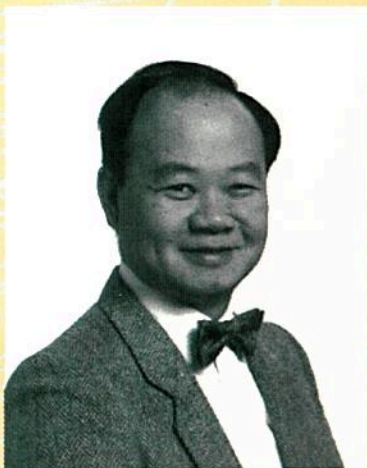
## ENERGY SAVINGS ARE PROFITABLE

### ENERGY STAR SAVINGS

39% ENERGY COST SAVINGS  
\$90,000 PER YEAR  
\$1.07 PER SQUARE FOOT  
PER YEAR

### INCREASE IN ASSET VALUE

\$8.82 PER SQUARE FOOT  
(PRE-TAX, 10% CAP RATE)



-PAUL C. TSENG, PE, CEM

### TOTAL SAVINGS

\$21.40 PER SQUARE FOOT  
(OVER 20 YEARS)

### INTERNAL RATE OF RETURN

59%

### TOTAL INVESTMENT COST

\$1.82 PER  
SQUARE FOOT

“OUR SAVINGS FROM THE ENERGY STAR PROGRAM TRANSLATE DIRECTLY INTO MORE FUNDS FOR CRITICAL SERVICES SUCH AS POLICE AND COMMUNITY BENEFITS SUCH AS LONGER LIBRARY HOURS.”



THIS 7-STORY, GOVERNMENT FACILITY WAS BUILT IN 1986 AS A SPECULATIVE OFFICE BUILDING. WITH UTILITY COSTS OF \$2.72 PER SQUARE FOOT PER YEAR VERSUS THE COUNTY'S AVERAGE COST OF \$1.15 PER SQUARE FOOT PER YEAR, THE BUILDING WAS A PRIME CANDIDATE TO PILOT TEST EPA'S APPROACH TO PROFITABLE ENERGY EFFICIENCY. AS A RESULT OF IMPLEMENTING THE ENERGY STAR UPGRADES DESCRIBED BELOW, UTILITY COSTS FOR THE HUNGERFORD OFFICE BUILDING HAVE BEEN REDUCED BY \$90,000 PER YEAR.

## HVAC PLANT

CHILLER WAS OUTFITTED WITH A NEW CONTROLLER TO ENHANCE CHILLER OPERATION.

## DISTRIBUTION SYSTEMS

AIR-SIDE UPGRADES INCLUDED VARIABLE-SPEED DRIVES ON FAN MOTORS, THE REPLACEMENT OF 85% EFFICIENT FAN MOTORS WITH 93% EFFICIENT MODELS, AND THE UPGRADE OF AIR HANDLING UNITS TO DIRECT DIGITAL CONTROL. WATER-SIDE UPGRADES INCLUDED A VARIABLE-SPEED DRIVE ON THE CHILLED WATER PUMP.

## BUILDING TUNE-UP

A DETAILED BUILDING INSPECTION AND SYSTEMS CHECK RESULTED IN RE-CALIBRATION OF THE REHEAT COILS IN VAV BOXES TO ELIMINATE EXCESS REHEAT, THE RESETTING OF THERMOSTATS (OVER 20 WERE OFF BY AS MUCH AS 5 DEGREES), AND A RECOMMISSIONING OF THE ENTIRE HVAC SYSTEM.

## LIGHTING

LIGHTING UPGRADES INCLUDED T8 LAMPS WITH ELECTRONIC BALLASTS, HIGH PRESSURE SODIUM EXTERIOR LIGHTING, AND OCCUPANCY SENSORS AND OTHER AUTOMATIC LIGHTING CONTROLS.

FOR MORE INFORMATION ON HOW TO JOIN AND PROFIT FROM ENERGY STAR BUILDINGS, CONTACT...  
EPA ENERGY STAR BUILDINGS PROGRAM  
401 M ST. SW, 6202J  
WASHINGTON, DC 20460  
OR, CALL THE ENERGY STAR HOTLINE: (202) 775-6650